

generating an upload copy of the document based on the user copy of the document including any instantiated content updates; and
transmitting the upload copy of the document to the storage device.

8. The method of claim 7, wherein receiving instructions from the first user to transmit the content update to the storage device comprises receiving instructions from the first user to store the document on the first computing device.

9. The method of claim 1, wherein receiving metadata updates periodically from the storage device comprises receiving presence information indicating identities of other users that are selected from a group consisting of users accessing the document and users associated with locks stored in the metadata associated with the document.

10. An authoring environment implemented on a first computing device to enable coauthoring of a document among users, the first computing device being configured to communicate with at least a storage device, the collaborative authoring environment comprising:

- a. a cache configured to store a base copy of the document, a download copy of the document, an upload copy of the document, a working copy of the document, and a lock table;
- b. an authoring application configured to manipulate the working copy of the document including manipulating content of the working copy and manipulating metadata of the working copy;
- c. a layer object that provides an interface between the authoring application and the cache, the layer object being configured to update the lock table stored within the cache automatically with updated metadata when the authoring application manipulates the metadata of the working copy, the layer object also being configured to generate the upload copy of the document based on the working copy of the document when instructions to generate the upload copy are received from the authoring application, wherein the upload copy includes content updates obtained from the download copy of the document; and
- d. a sync manager configured to manage interactions between the cache and the storage device, the sync manager being configured to push the updated metadata from the lock table to the storage device automatically and being configured to push the upload copy of the document from the cache to the storage device when instructions to provide the updates to the content are received from the authoring application.

11. The authoring environment of claim 10, wherein the sync manager also is configured to obtain any updated download copy periodically from the storage device and to store the updated download copy within the cache of the first computing device; wherein the updated download copy includes content updates generated by other users.

12. The authoring environment of claim 11, wherein the authoring application provides alerts indicating an updated download copy is available for viewing at the first computing device.

13. The authoring environment of claim 11, wherein the authoring application is configured to receive instructions from a user of the authoring application to view any content updates contained in the updated download copy.

14. The authoring environment of claim 10, wherein the authoring application includes a word processing application.

15. A computer readable storage medium storing computer executable instructions, which perform a method of authoring a document when executed by a computing device, the method comprising:

receiving at a first authoring application instructions to manipulate a first unit of data of a document being edited by the first authoring application, the first authoring application being utilized by a first user and being implemented on a first computing device;

generating a content lock on the first unit of data automatically after receiving the instructions to manipulate by associating the first unit of data with the first user in a lock table, the lock table being accessible to a plurality of other authoring applications, wherein only the first user can manipulate the first unit of data when the first unit of data has the content lock;

manipulating the first unit of data of the document with the first authoring application in accordance with the instructions to manipulate; and

releasing the content lock on the first unit of data only when instructions to release the content lock are provided to the first authoring application by the first user, wherein releasing the content lock includes disassociating the first unit of data from the first user in the lock table.

16. The computer readable storage medium of claim 15, wherein the method further comprises:

expanding the content lock to encompass additional units of data when instructions from the first user to manipulate the additional units of data are received by the first authoring application, wherein expanding the content lock includes associating the additional units of data with the first user in the lock table.

17. The computer readable storage medium of claim 15, wherein releasing the lock on the first unit of data comprises releasing the lock on the first unit of data when the first user provides to the first authoring application an indication that the first user has finalized edits to the first unit of data.

18. The computer readable storage medium of claim 15, wherein the lock table is stored on a remote storage device accessible by the other authoring applications.

19. The computer readable storage medium of claim 16, wherein the method further comprises:

transmitting automatically any lock updates to the lock table stored on the storage device.

20. The computer readable storage medium of claim 15, further comprising:

retrieving updates to the lock table from the storage device, the updates to the lock table having been made by at least one of the other users;

instantiating the updates to the lock table into the document automatically.

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